

Shg July 20

Work Order ID 87035

\*87035\*

Page 1

July-10-12 8:24:04 AM

Item ID: D206-642-351

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Item Name: Replacement Skidtube

Stop \*NS2\*

Start Date: 10/07/2012 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: MJS

Date: 12/07/10 Tooling:

Date:

Run Start \*NR1\*

QC:

Date: SPC (Y/N):

Date:

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D4361	A
IIN-D206-642	O

100

0.00

\*100\*

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels per PPP D206-642-351 CHG001

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 87035****\*87035\***

Page 2

July-10-12 8:24:04 AM

Item ID: D206-642-351

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Item Name: Replacement Skidtube

Stop **\*NS2\***Start Date: 10/07/2012 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start **\*NR1\***

QC: Date: SPC (Y/N): Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110		0.00							
<b>*110*</b>	Skidtubes								
Skidtubes	Memo	0.00							
Skidtubes	1-Deburr Fwd edge of tube								
	2-Remove ridge on inside of Fwd edge of tubeas per Dwg D4361								
	3-Weld Fwd Cap as per Dwg D4361 Use aluminum rod. Grind D2647 to fit as required. A/RAluminum Rod <u>M122130/M120164</u>								
	4-Grind weld flush to cap on top surface only.								
	5-Cut aft end to lenght as per dwg D4361								
	6-Drill pilot holes using drill Jig DT8168A and DT8168B. Most Fwd wearplate hole to be laid out manually.								
	8-Open Aft Cap Hole using # Drill Bit								
	9-Open holes for Tow Ring to Ø0.625" as per Dwg D4361, D4361-041 Drilling Detail								
	10-Remove inner indexing ridge on aft end of skidtubeas per Dwg D4361								
	11-Deburr and Blow out all chips form inside the tube								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Start Date: 10/07/2012 Start Qty: 1.00

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Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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115

QC5- Inspect part completeness to step on W/O

0.00

**\*115\***

QC

Memo

0.00

Quality Control

120

Chemical Conversion Coat per QSI005 4.1

0.00

**\*120\***

HandFinish

Memo

0.00

Hand Finishing

125

QC3- Inspect Part Finish

0.00

**\*125\***

QC

Memo

0.00

Quality Control

5/17/07/1/1

1 7/12 12-7-11

DP 12-7-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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**NOTE:** Date & initial all entries

**Work Order ID 87035****\*87035\***

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July-10-12 8:24:04 AM

Item ID: D206-642-351

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**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Replacement Skidtube

Start Date: 10/07/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130

0.00

**\*130\***

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Open holes to finished size as per Dwg D4361, D4361-041 Drilling Detail

2-Countersink crossbolt spacer holes as per Dwg D4361

3-Deburr. Blow out chips. Grind alodine off around crossbolt spacer.

4-Bond D2654-5 web in place as per QSI 015, Ensure holes line up. Allow 12 Hrs. cure time

Start Date: 12-7-12 Time: 11:00  
Finish Date: 12-7-12 Time: 1:00A/R Sikaflex-291: M121409  
Sikaflex expiry date: 13-4-121 CF 12-7-12

140

QC5- Inspect part completeness to step on W/O

0.00

**\*140\***

QC

Memo

0.00

Quality Control

1 Ø DAS 12/07/12

W/O: 87035		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D206-642-351 PAR #: \_\_\_\_\_ Fault Category: Skid tube NCR: Yes No DQA: Yes Date: 12/08/20  
 Resolution: Rework Disposition: \_\_\_\_\_ QA: N/C Closed: Yes Date: 12/08/21

NCR: 12-112		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12/1/15	130	Fwd-most & aft-most I-beam hole is off by 1/8". X-bolt spacers can't install.	GP 12/1/17	Acceptable to ovalize I-beam to allow X-bolt spacers to install	BE 12/07/17	DAS 12/1/13	GP 12/1/13	12/1/30
12/7/18	130	→ additional hole was off. 14th from aft hole. Aft beam hole wasn't opened at this location	DAS 12-89 12/1/18	Acceptable to ovalize I-beam hole to allow X-bolt spacer to install		DAS 12-89 12/1/18	DAS 12-89 12/1/18	12/1/30
		R.C. PROCESS/TOOLING						

NOTE: Date & initial all entries



# Work Order ID 87035

**\*87035\***

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July-10-12 8:24:04 AM

Item ID: D206-642-351

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Replacement Skidtube

Start Date: 10/07/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150

0.00

**\*150\***

Skidtubes

Skidtubes

Memo

0.00

1-Prep per QSI 005 and Insert cross bolt spacers D2649. Weld as per QSI 004 and Dwg D4361. Remember to back drill each hole to 0.25" before welding the other side. Use aluminum rod. A/RAluminum Rod *m120104* *BE 12/07/17*

2-Grind welds flush as per Dwg D4361 *SAD 12-07-13*

3-Counterbore 5/16" x 0.750" deep as per Dwg D4361. Deburr *D 12-7-25*

4- Install nut plate as per dwg *- m 12/07/25*

170

QC10- Inspect visual per QSI004- ground welds

0.00

**\*170\***

QC

Memo

0.00

Quality Control



*710-7*

# Dart Aerospace Ltd

W/O: 87035		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D706-642-38 PAR #:   Fault Category: Landing Gear Skidplate NCR: (Yes) No DQA: [Signature] Date: 12/08/21  
 Resolution: Acceptable Disposition: Acceptable QA: N/C Closed Date: 12/08/21

NCR: 12-173		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12/09/21	1203	Found at inspection that the counter bore was too deep. measuring 0.820 to 0.830" should be 0.75 to 0.80"	[Signature] 12.7.21	Acceptable per Email from CHRIS P to DAVID S. July 27th 2019. See attach	[Signature] 12-7-21	DA 16 12-7-21	DA 16 12-09-21	DAS 16 12/09/21
		P.C. Set up on counter bore was incorrect operator error L00 INSTRUCTIONS/INFORMATION						

NOTE: Date & initial all entries

## Eric Downing

---

**From:** Chris Provencal <cprovencal@dartaero.com>  
**Sent:** Friday, July 27, 2012 11:15 AM  
**To:** David Shepherd  
**Cc:** psmith@dartaero.com; 'L Lacelle'; 'Isam El-Kassis'; 'Eric Downing'; Mike Petsche  
**Subject:** RE: D206 skids

David,

The affected tubes are several float (-541) and regular tubes (-351). The float holes aren't counterbored and are unaffected. As the crossbolt spacers are not loaded except in bearing by the bushings, the additional length of the counterbore would have no effect on the strength of the crossbolt spacer from regular loading conditions. There would be a small reduction in buckling strength from sideways crushing loads, which doesn't represent a critical loading condition per the FAR requirements.

I will accept these tubes based on that rational. This email is an FYI in case you have an objection.

-Chris

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**From:** Eric Downing [<mailto:edowning@dartaero.com>]  
**Sent:** Friday, July 27, 2012 8:34 AM  
**To:** 'Provencal, Chris'  
**Cc:** psmith@dartaero.com; 'L Lacelle'; Isam El-Kassis  
**Subject:** D206 skids  
**Importance:** High

Good morning Chris

I need to see you as soon as you read this message I have found the counter bore depth on QTYX9 D206 skids are too deep. I am measuring 0.820"-0.830" and it should be at 0.75+/-0.030". I have 6 in progress and 3 already painted and assembled. What happened was that I had inspected some 206 skids and found that the counter bore was correct but I didn't know that they had changed the counter bore part way through the day and was not set up correctly so I had assumed that they were still the same depth and when I measured the first one today like I do always the depth was not correct at all.

I need to know if this will be acceptable or that we need to rework all the skids.

Thanks  
**Eric Downing**  
QC Corrdinator  
Dart Aerospace LTD



# Work Order ID 87035

\*87035\*

Page 6

July-10-12 8:24:04 AM

Item ID: D206-642-351

Accept

\*N900040100\*

Setup Start

\*NS1\*

Revision ID:

Stop

\*NS2\*

Item Name: Replacement Skidtube

Start Date: 10/07/2012 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

\*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop

\*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID Tool # Plan  
Code

Accept Reject Reject Insp.  
Qty Qty Number Stamp

180

QC5- Inspect part completeness to step on W/O

0.00

\*180\*

QC

Memo

0.00

Quality Control

190

Pressure Wash per QSI005 4.3

0.00

\*190\*

HandFinish

Memo

0.00

Hand Finishing

Brush alodine tube on crossbolt spacer area, do not acid etch, do not dip tube in tank.

200

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

\*200\*

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

1 1200 320 OF 1250

1 76 12730

IX 12/7/30

1121841

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 87035

**\*87035\***

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July-10-12 8:24:04 AM

Item ID: D206-642-351

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Item Name: Replacement Skidtube

Stop **\*NS2\***

Start Date: 10/07/2012 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

210

QC3- Inspect Part Finish

0.00

**\*210\***

QC

Memo

0.00

Quality Control

1 ~~2~~ (2P) 12/07/31

220

HandFinishing

0.00

**\*220\***

HandFinish

Memo

0.00

Hand Finishing

1-Install wearplates as per dwg D4361.

2-Install O-Rings D2651-3 on plugs D2651-1 with Petroleum Jelly and install plugs as per Dwg D4361. Clean excess adhesive

3-Install MS27039-4-06 Screw

4-Inspect for foreign object per QSI 024

5-Install D2646 Aft Cap and seal with SikaflexClean excess adhesive  
A/RSikaflex-291 ~~2012213~~  
Sikaflex expiry date: 12/163

6-Wing Walk as per Dwg D4361-041 and QSI 005 4.4  
Batch: 26/21613

1 ~~2~~ (2P) 12/07/31

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Page 8

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Setup Start

**\*NS1\***

Revision ID:

Item Name: Replacement Skidtube

Stop

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Start Date: 10/07/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	QC3- Inspect Part Finish	0.00							
<b>*230*</b>									
QC	Memo	0.00							
Quality Control									
240	QC5- Inspect part completeness to step on W/O	0.00							
<b>*240*</b>									
QC	Memo	0.00							
Quality Control									
250	Packaging	0.00							
<b>*250*</b>									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-642-351								
	Location: _____								
	PPP Rev: _____								

DAS  
16  
9-8 12/08/14

DAS  
16  
33 12/08/14

PPP 86992

12/8/14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Setup Start \*NS1\*

Revision ID:

Item Name: Replacement Skidtube

Stop \*NS2\*

Start Date: 10/07/2012 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 23/07/2012 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: Date:

Tooling: Date:

Run Start \*NR1\*

QC: Date:

SPC (Y/N): Date:

Stop \*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

260

QC21- Final Inspection - Work Order Release

0.00

\*260\*

QC

Memo

0.00

Quality Control

ML5 12/08/17

MF  
12-08-17

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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# Picklist Print

July-10-12 8:24:08 AM

Page 1

Work Order ID: 87035

\*87035\*

Parent Item: D206-642-351

\*D206-642-351\*

Parent Item Name: Replacement Skidtube

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A NEW ISSUE 12-07-09 JLM VERIFIED BY:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2600-1-160		Manufactured	No				Each	55.0000		1			

~~\*D2600-1-160\*~~

Extrusion Round 3" 206

D2620

Location	Loc Qty	Loc Code
LG	55	
43969	2	
59875	1	
68284	4	
76913	48	
86331	0	

\*\*

SAD 12.07-10

B86331

D2654-5

Manufactured No

\*D2654-5\*

Web

B87049

Location	Loc Qty	Loc Code
LG	7	
82128	1	
85209	6	

\*\*

1

CF 12-7-12

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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Page 2

Work Order ID: 87035

\*87035\*

Parent Item: D206-642-351

\*D206-642-351\*

Parent Item Name: Replacement Skidtube

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

D2646

Manufactured No

Each

81.0000

1

\*D2646\*

Aft Cap

\*\*

1

OP 12/07/31

## Location

## Loc Qty

## Loc Code

FP002

81

62678

5

68280

5

70945

1

71070

2

73294

1

73825

2

79562

4

81974

28

85443 ✓

33

D2647

Manufactured No

Each

65.0000

1

\*D2647\*

Cap

\*\*

BE 12/07/10

## Location

## Loc Qty

## Loc Code

LG002

65

75482

3

79563

62

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

July-10-12 8:24:08 AM

Page 3

Work Order ID: 87035

\*87035\*

Parent Item: D206-642-351

\*D206-642-351\*

Parent Item Name: Replacement Skidtube

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

D2649

Manufactured No

Each

351.0000

23

\*D2649\*

\*\*

Cross Bolt Spacer

BE 12/67/7

## Location

## Loc Qty

## Loc Code

LG

208

77574

2

79502

8

79503

5

79564

4

79565

7

85586

182

23

LG001

143

65317

1

68224

2

68507

11

71355

2

72704

2

72841

11

73390

8

73857

21

73858

53

73859

4

73860

4

78020

6

78583

2

79566

16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

July-10-12 8:24:08 AM

Page 4

Work Order ID: 87035

Parent Item: D206-642-351

Parent Item Name: Replacement Skidtube

\*870.35\*

\*D206-642-351\*

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

D2651-1

Manufactured No

Each

474.0000

4

\*D2651-1\*

Plug

\*\*

4

(2P)

12/07/31

Location

Loc Qty

Loc Code

FP 200

FP001 425

57869 1

66445 10

69018 2

70827 2

70839 8

71037 8

77559 30

78584 18

79234 46

FP002 203

85456 ✓ 203

FP-A -354

77559 1

78124 5

81954 36

82573 104

D2651-3

Manufactured No

Each

1,016.000

4

\*D2651-3\*

O-Ring

\*\*

4

(2P)

12/07/31

Location

Loc Qty

Loc Code

FP001 16

61962 12

73828 4

FP-A 1000

78126 ✓ 1000

July-10-12 8:24:08 AM

Shop Packet Print

Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

July-10-12 8:24:08 AM

Page 5

Work Order ID: 87035

\*87035\*

Parent Item: D206-642-351

\*D206-642-351\*

Parent Item Name: Replacement Skidtube

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

D2680-041

Manufactured No

Each

74.0000

\*D2680-041\*

Nut Plate

\*\*

1  
12/07/28

## Location

## Loc Qty

## Loc Code

ST013

74

78016

74

Each

332.0000

18

\*\*

18 29 12/07/31

D3873-1

Manufactured No

\*D3873-1\*

Bushing

## Location

## Loc Qty

## Loc Code

ST057

6

79561

6

ST067

326

64760

1

68247

4

73829

19

73830

2

76791 ✓

280

79560

20

D4364-041

Manufactured No

\*D4364-041\*

Fwd Wearplate Assembly

D4364-043

Manufactured No

\*D4364-043\*

Aft Wearplate Assembly

Each

0.0000

\*\*

1 29 12/07/31

Each

0.0000

\*\*

1 29 12/07/31

87540 ✓

July-10-12 8:24:08 AM

Shop Packet Print

Page 5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

July-10-12 8:24:08 AM

Page 6

Work Order ID: 87035

\*87035\*

Parent Item: D206-642-351

\*D206-642-351\*

Parent Item Name: Replacement Skidtube

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

AN3-36A Purchased No Each 222.0000  
**\*AN3-36A\*** \*\* 9 (2P) 12/07/31  
 Bolt

Location	Loc Qty	Loc Code
ST353	222	
15072	70	
15924 ✓	152	

NAS1149C0332R Purchased No Each 9,080.000  
**\*NAS1149C0332R\*** \*\* 9 (2P) 12/07/31  
 Washer

Location	Loc Qty	Loc Code
297	9058	
122063 ✓	9058	
ST297	22	
121509	22	

MS21042-3 Purchased No Each 0.0000  
**\*MS21042-3\*** \*\* 9 (2P) 12/07/31  
 USE MS21042L3 \* \* 119017 ✓

NAS1149D0332J Purchased No Each 1,517.000  
**\*NAS1149D0332J\*** \*\* 2 (2P) 12/07/31  
 Washer

Location	Loc Qty	Loc Code
ST297	930	
121708	930	
ST298	587	
105793	12	
110985	4	
117087	89	
119042	16	
119717 ✓	103	
120644	7	
121011 ✓	356	

July-10-12 8:24:08 AM

Shop Packet Print

Page 6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



# Picklist Print

July-10-12 8:24:08 AM

Page 7

Work Order ID: 87035

\*87035\*

Parent Item: D206-642-351

\*D206-642-351\*

Parent Item Name: Replacement Skidtube

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

CCR264SS3-3

Purchased

No

Each

320.0000

2

\*CCR264SS3-3\*

Cherry Rivet

\*\*

DC 12/07/25

## Location

## Loc Qty

## Loc Code

ST331

320

113973

2

117849

77

119017

241

CR3212-4-3

Purchased

No

Each

0.0000

2

\*CR3212-4-3\*

Cherry Rivet

\*\*

DC 12/07/25

MS27039-1-08

Purchased

No

Each

1,168.000

2

\*MS27039-1-08\*

Screw

\*\*

2 DC 12/07/31

## Location

## Loc Qty

## Loc Code

ST291

1168

117423

81

119075

1

120308

166

121011

43

121243

500

121708 ✓

377

MS27039-4-06

Purchased

No

Each

114.0000

1

\*MS27039-4-06\*

Screw

\*\*

1 DC 12/07/31

## Location

## Loc Qty

## Loc Code

ST292

114

119075 ✓

114

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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July-10-12 8:24:08 AM

Page 8

Work Order ID: 87035

\*87035\*

Parent Item: D206-642-351

\*D206-642-351\*

Parent Item Name: Replacement Skidtube

Start Date: 10/07/2012

Required Date: 23/07/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0463J

Purchased

No

Each

1,946.000

\*NAS1149D0463.J\*

Washer

\*\*

1

2P

12/07/31

Location

Loc Qty

Loc Code

ST298

89

104746

3

116805

0

119097

27

121255

48

121708

11

ST299

1854

121912

1854

ST351

3

107321

3

12244 ✓

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

QTY -041	QTY -043	PART NUMBER	DESCRIPTION
X		D4361-041	SKIDTUBE ASSY
	X	D4361-043	SKIDTUBE ASSY
1	1	D2600-1-160	EXTRUSION
1		D2654-5	WEB
	1	D2654-7	WEB
1	1	D2646	AFT CAP
1	1	D2647	CAP
23	26	D2649	CROSS BOLT SPACER
4	8	D2651-1	PLUG
4	8	D2651-3	O-RING
1	1	D2680-041	NUT PLATE
18	20	D3873-1	BUSHING
1		D4364-041	FWD WEARPLATE ASSY
1		D4364-043	AFT WEARPLATE ASSY
	1	D4366-041	FWD WEARPLATE ASSY
	1	D4366-043	AFT WEARPLATE ASSY
9	10	AN3-36A	BOLT
9	10	NAS1149C0332R	WASHER (OR AN960C10L)
9	10	MS21042-3	NUT
2	2	NAS1149D0332J	WASHER (OR AN960JD10L)
2	2	CCR264SS3-3	RIVET
2	2	CR3212-4-03	RIVET
2	2	MS27039-1-08	SCREW
1	1	MS27039-4-06	SCREW
1	1	NAS1149D0463J	WASHER (OR AN960JD416)

# NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: -CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO INSTALLING D2654-5/-7 WEB  
-POWDER COAT WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
-BLACK ANTI-SKID PAINT AS INDICATED TO 0.5 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D4361-041 = 37.5 LBS  
D4361-043 = 44.3 LBS
- 8) WELD PER DART QSI 004
- 9) DAMAGE TOLERANCE ON FWD BEND:  
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE.  
A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- 10) BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015
- 11) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE)

SHOP COPY  
RETURN TO:  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 87035 MLJ  
12/07/10

RELEASED  
R 2011-09-12

A	NEW ISSUE	SC	11.05.05
REV	DESCRIPTION	BY	DATE
DESIGN	SC	DART AEROSPACE USA, INC	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED	97	DRAWING NO.	REV. A
MFG. APPR.	BE	D4361	SHEET 1 OF 4
APPROVED	AD	TITLE	SCALE
DE APPR.	AD	206L/407 SKIDTUBE ASSEMBLIES	NTS
DATE	11.05.05	COPYRIGHT © 2011 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMES OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC	

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Technical drawing of a bridge deck cross-section. The drawing includes the following dimensions and details:

- Overall Width:** 117.4
- Deck Thickness:** 5.0
- Top Flange:** 10.00
- Web Thickness:** 2.40
- Bottom Flange:** 6.00
- Top Flange Detail A (C7.4):** 7.00
- Top Flange Detail A (C7.4):** 82.25
- Top Flange Detail A (C7.4):** 43.63
- Top Flange Detail A (C7.4):** 35.90
- Top Flange Detail A (C7.4):** 28.18
- Top Flange Detail A (C7.4):** 17.95
- Top Flange Detail A (C7.4):** 10.23
- Top Flange Detail A (C7.4):** 2.00 TO WEB
- Top Flange Detail A (C7.4):** 2.50
- Top Flange Detail A (C7.4):** 2.50
- Top Flange Detail A (C7.4):** 57.73
- Top Flange Detail A (C7.4):** 2.40
- Top Flange Detail A (C7.4):** 18.65
- Top Flange Detail A (C7.4):** 17.1 REF
- Top Flange Detail A (C7.4):** 2.33 REF
- Top Flange Detail A (C7.4):** R30±1
- Top Flange Detail A (C7.4):** 30.90
- Top Flange Detail A (C7.4):** 5 HOLES AT 7.725 PITCH
- Top Flange Detail A (C7.4):** Ø0.375
- Top Flange Detail A (C7.4):** 23 PL PER SIDE
- Top Flange Detail A (C7.4):** D2654-S WEB
- Top Flange Detail A (C7.4):** Ø0.625
- Top Flange Detail A (C7.4):** THIS LOCATION ONLY BOTH SIDES
- Top Flange Detail A (C7.4):** 100.3 TO BEND TANGENT
- Top Flange Detail A (C7.4):** 117.4

DETAIL D  
A3-6

1.5

1.5

9.5

ANTI-SKID PAINT  
2 PL (2)

1.5

DETAIL B  
C5-4

C

A7-4

C

D4364-041  
FWD WEARPLATE ASSY

AN3-36A BOLT  
D3873-1 BUSHING, 2X  
NAS1149C0332R WASHER (OR AN960C10L)  
MS21042-3 NUT  
9 PL

D4364-043  
AFT WEARPLATE ASSY

DESIGN	SC	<b>DART AEROSPACE USA, INC</b>	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED	<i>JP</i>	DRAWING NO	REV. A
MFG. APPR.	<i>JP</i>	D4361	SHEET 2 OF 4
APPROVED	<i>JP</i>	TITLE	SCALE
DE APPR.	<i>JP</i>	206L/407 SKIDTOE ASSEMBLIES	
DATE	11.05.05	NTS	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

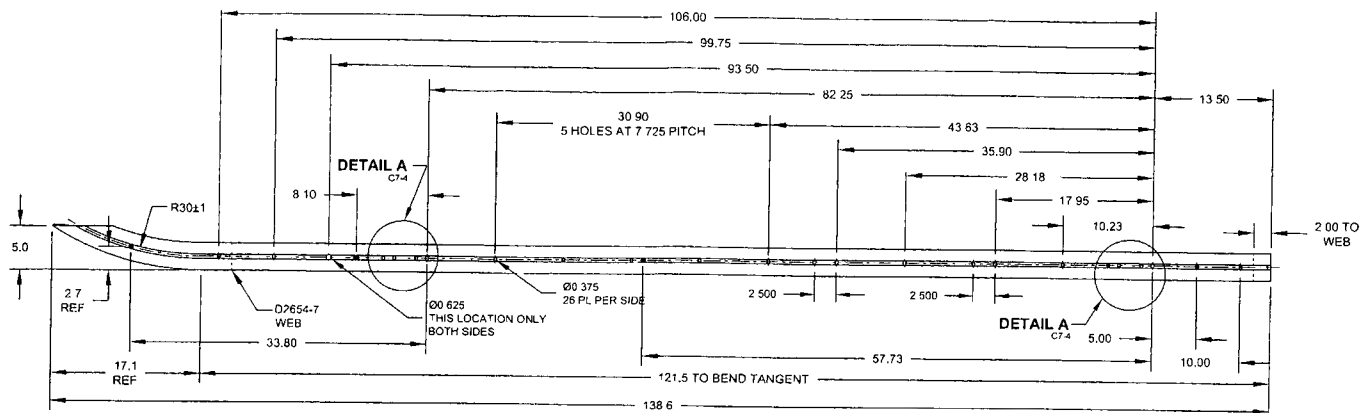
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

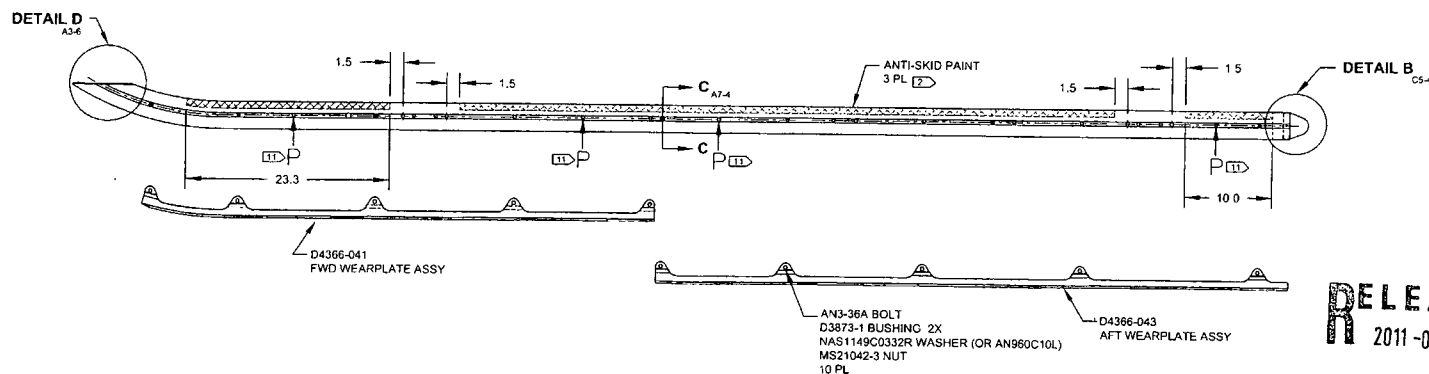
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries





**D4361-043 BENDING/DRILL DETAIL**



**D4361-043 ASSEMBLY/FINISHING DETAIL**

DESIGN	SC	<b>DART AEROSPACE USA, INC</b>	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED	9	DRAWING NO.	REV. A
MFG. APPR.	E	D4361	SHEET 3 OF 4
APPROVED	10	TITLE	SCALE
DE APPR.	10	206L/407 SKIDTUBE ASSEMBLIES	NTS
DATE	11.05.05	COPYRIGHT © 2011 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CO-CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC	

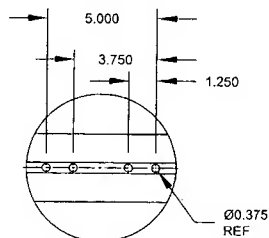
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

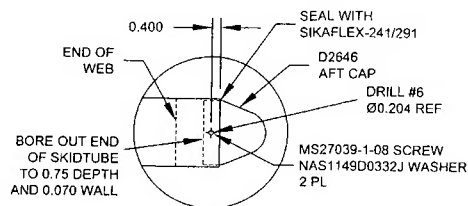
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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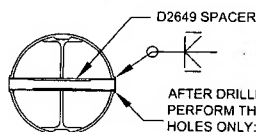
**DETAIL A**

C3-2  
D7-2  
C3-3  
D6-3



**DETAIL B**

B2-2  
B1-3

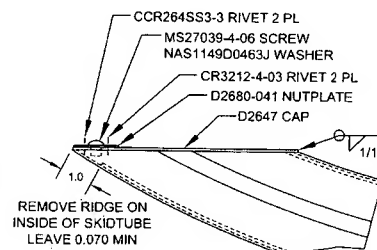


AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.375  
HOLES ONLY:  
1. CHAMFER HOLE 0.030 X 45°  
2. INSERT D2649 SPACER  
3. WELD INTO PLACE AND GRIND FLUSH  
4. CBORE TO Ø0.313 X 0.75 DP

**SECTION C-C**  
FOR Ø0.375 HOLES  
ONLY

B4-2  
B5-3

ORIENTATION OF  
D2680-041



**DETAIL D**

B7-2  
B7-3

**DETAIL D NOTES:**

1. CUT TUBE LEVEL
2. REMOVE RIDGE ON FWD SIDE
3. LOCATE D2647 (TRIM AS NECESSARY)
4. WELD D2647 IN PLACE PER DART QSI 004
5. GRIND FLUSH
6. RIVET D2680-041 NUT PLATE IN PLACE

NOTE: MASK THREADS IN D2680-041 PRIOR TO FINISH

**RELEASED**  
2011-09-12  
WJ

DESIGN	SC	<b>DART AEROSPACE USA, INC</b> PORT HADLOCK, WA	
DRAWN	SC		
CHECKED	9	DRAWING NO.	REV. A
MFG. APPR.	9	D4361	SHEET 4 OF 4
APPROVED	9	TITLE	SCALE
DE APPR.	9	206L/407 SKIDTUBE ASSEMBLIES	NTS
DATE	11.05.05	<small>COPYRIGHT © 2011 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

NO. 299

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job #: B85361  
Part #: A206-642-541  
Description: Skid  
Welding Process: Tig[☒] Mig[ ]  
Base material: Alum.  
Current: AC[ ☒ ] DC[ ]

TEST REQUIREMENTS AND RESULTS

Visual:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Incomplete Penetration:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Incomplete Fusion:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Cracks:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Overlap (cold lap)	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Undercut:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Pin holes:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Porosity (surface):	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Coloration:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]
Burn through:	pass[ <input checked="" type="checkbox"/> ]	fail[ ]

Qualifier David Jewel Date of Test Coupon 12-07-26  
Welder Barclay Elliott Date of Test Coupon 12-07-26

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

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